Stoller
Hanford Office

DOE-EM/GJ1249-2006

299-W15-224 (C4986)
Log Data Report

Borehole Information:

Borehole:	299-W15-224 (C4986)		Site:	LLWMA-4	
Coordinates (WA St Plane)		GWL[1] (ft) :	236	GWL Date:	2/21/06
North	East	Drill Date	Ground Level Elevation	Total Depth (ft)	Type
Not available	Not available	02/06	Not available	275	Becker

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	?	6.24	6.0	0.12	?	275
Steel	2.0	9.0	8.0	0.50	2.0	275

Borehole Notes:

The Becker drilling system uses a dual-wall casing. Air is forced down the annulus and cuttings are returned inside the inner casing. Total wall thickness is 0.620 in., increasing to 1.115 in. at the casing joints that occur at 10-ft intervals. The casing dimensions are derived from published values for Becker drill casing. Logging data acquisition is referenced to the ground surface.

Logging Equipment Information:

Logging System:	Gamma 1N		Type:	SGLS (60%) SN: 45TP22010A
Effective Calibration Date:	11/29/05	Calibration Reference:	DOE/EM-GJ1053-2005	
		Logging Procedure:	MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat		
Date	02/21/06	02/21/06		
Logging Engineer	Spatz	Spatz		
Start Depth (ft)	274.0	30.0		
Finish Depth (ft)	0.0	11.0		
Count Time (sec)	NA	NA		
Live/Real	R	R		
Shield (Y/N)	N	N		
Sample interval (ft)	1.0	1.0		
ft/min	1.0	1.0		
Pre-Verification	AN008CAB	AN008CAB		
Start File	AN008000	AN008274		

Log Run	1	2 Repeat		
Finish File	AN008273	AN008293		
Post-Verification	AN008CAA	AN008CAA		
Depth Return Error (in.)	Low 1.5	0.0		
Comments	Fine-gain adjustment made at bottom of borehole before logging began.	Repeat section.		

Logging Operation Notes:

Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 118.
A centralizer was installed on the sonde during logging.
Maximum borehole depth logged was 274.3 ft, before sonde un-weighted.

Analysis Notes:

Analyst:	Pope	Date:	07/17/06	Reference:	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system were performed before and after data acquisition. Acceptance criteria were met for all verification spectra, except for the resolution (full-width at half-max) of the 609 keV peak from the pre-run verification spectrum, which is approximately 5% above the upper-control limit. The resolutions and count rates of the 1460 and 2614 keV energy peaks are well within control limits, as are all peaks from the post-run spectrum. The pre-run spectrum was examined, and was found to be acceptable.

Casing thickness (additive for the 6- and 9-in. casings) is approximately 0.620 in. The combined thickness at casing joints is 1.115 in. This thickness results in a significant reduction in gamma activity detection as the detector passes by a casing joint. However, it is not practical to correct individual data points for the effect of casing joints. The influence of the thick joints is apparent on the total gamma plot, where reduced count rates are exhibited at approximately 10-ft depth intervals.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to extract the total gamma count rate from individual files. No corrections are made for dead time, casing, or water.

Log Plot Notes:

Log plots are provided for the total gamma and dead time. A repeat log section is also presented.

Results and Interpretations:

A decrease in gamma activity occurs at each casing joint, where the increase in wall thickness results in greater attenuation of gamma activity. No anomalous gamma activity was observed. This observation suggests no significant concentrations of man-made radionuclides. An increase in total gamma activity from about 128 to perhaps 165 ft may be coincident with the fine-grain sediments and caliche in the lower Hanford Formation.

The repeat section indicated good agreement of the total count rate.

[1] GWL – groundwater level
[2] N/A – not applicable

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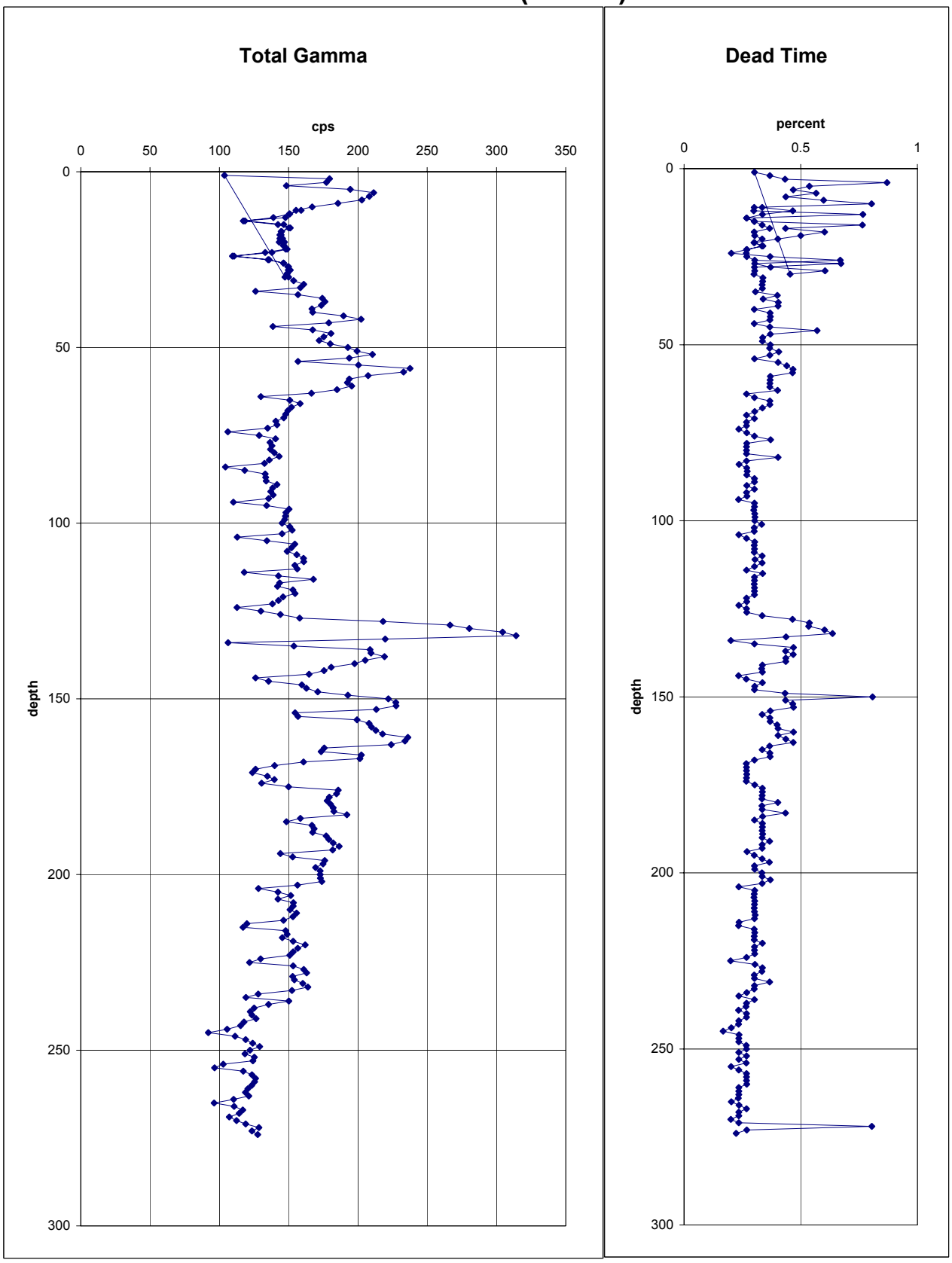

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